

# Winsurfer 自动绘制剖析图图册的程序

张雷 ,刘德鹏

( 安徽省勘查技术院 ,安徽 蚌埠 233005 )

摘 要 :介绍用 Winsurfer 自动画剖析图的方法。Winsurfer 提供了一个脚本开发环境—Gsmac ,这是一个在 Gsmac 下开发的脚本程序 ,简单易行。只要准备好数据和各元素的内、中、外带等级文件——\*.LVL 及各个综合异常的地质图栅格文件 ,即可自动绘制剖析图图册。

关键词 :Gsmac ,Winsurfer ,脚本开发 ,LVL 文件 ,综合异常 ,内带、中带、外带

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Winsurfer 是一个专业绘制轮廓线的程序 ,目前已有 8.0 版。业内使用它画图的人很多 ,也比较方便。但是当多个图块、同比例同页显示时 ,工作量显著增加。在做化探异常剖析图图册时 ,这个问题尤为突出。一般化探报告要有百余张剖析图 ,简单使用 Winsurfer 的确工作量非常大。Winsurfer 提供了一个脚本开发环境——Gsmac ,用它开发在 Winsurf-

er 下的自动化程序 ,比较方便 ,效果显著。  
这里介绍一个自动化绘制剖析图册的小程序 ,笔者用本程序完成 1999 ~ 2004 年的 1: 20 万区域化探大调查项目 ,其效率高、成本低 ,效果显著。

## 1 程序编制流程

程序流程见图 1。

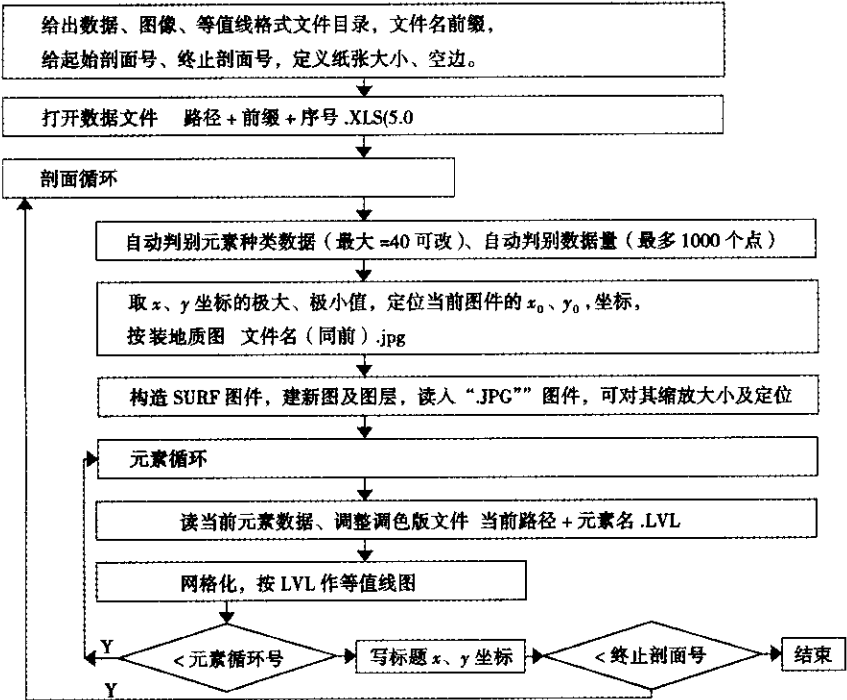


图 1 程序编制流程

## 2 数据准备

( 1 )原始数据文件 ①命名规则 :前缀 + 序号 + “.XLS” ;②数据格式 :见实例( 1 )文件附表。

( 2 )等值线格式文件 ①可先由 Winsurfer 自动形成一个 AA.LVL 文件( AA 为原始数据文件中第一行相对应元素名 ) ;②由文档编辑工具进行修改其中的等值线值 ;③另存文件为对应的元素名文件 ,

如 Ag, LVL ,Au, LVL 等。

(3)栅格图像文件 ①命名规则 :前缀(同原始数据文件)+序号+“.JPG” ;②切图规则 :用切图工具切图时应保持图像范围与原始文件中的  $x,y$  范围一致。

3 操作说明

(1)将以上的3项数据文件准备好并放入同一目录下 ,启动 Gsmac 打开该程序并运行。  
(2)按提示依次输入参数 ,一会儿即可绘出想要的图册了(其中  $x,y$  坐标自动计算 ,数据数量自动识别)。

4 实例

(1)原始数据文件(其中 zh-yc 为前缀 ,l 为异常号 ,部分数据)

文件附表 zh-ycl.xls

x	y	As	Ag	Sn	Sb
5527	573	5.13	44.3	5	0.48
5527	575	4.1	59.3	2.3	0.26
5527	577	5.08	32.5	5.6	0.49
5527	579	5.3	70.1	4.4	0.34
5527	581	6.55	70.1	4.9	0.28
5527	583	6.72	76.9	4	0.31
5527	585	7.1	60.8	3.4	0.24
5527	587	5.73	39.2	2.1	0.32
5527	589	5.13	89.9	2.1	0.25
5529	573	8.79	52.6	4.4	0.5
5529	575	5.41	48.4	4.6	0.26
5529	577	8.19	32.5	4.3	0.49

(2)等值线格式文件(一个元素文件 ,其他 10 个元素的类比)

Ag, L  
LVL2

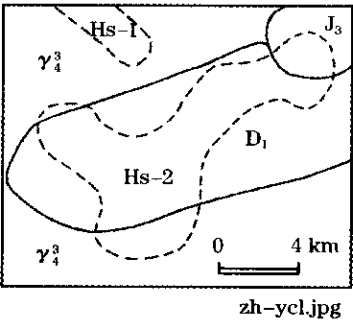
Level Flags LColor LStyle LWidth FFGColor FBG-Color FPattern FMode

90 1 "Black" "Solid" 0 "Black" "50% Black" "6.25% Black" 2

180 1 "Black" "Solid" 0 "Black" "50% Black" "Vertical" 2

360 1 "Black" "Solid" 0 "Black" "50% Black" "Diagonal Cross" 1

(3)栅格图像文件 :如图 2 所示。



图例同图 3

图 2 Hs-1、Hs-2 号综合地球化学异常

(4)剖析图 :如图 3 所示。

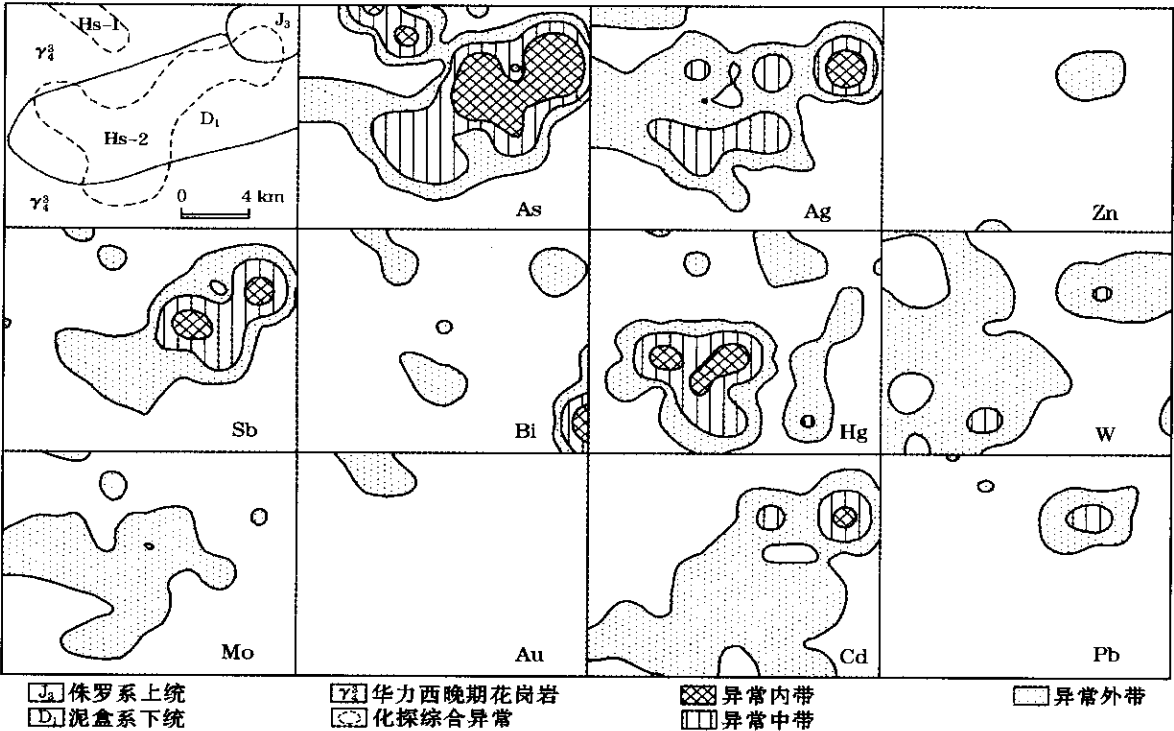


图 3 地球化学异常剖析

## 5 源程序

```

path$ = INPUTBOX$( "路径" , "Path" , "E :\bhq\51\rgn\" )
fn$ = INPUTBOX$( "文件名前缀" , "FileName - sup" , "zh - yc" )
Set Surf = CreateObject( "Surfer. App" )
Surf. DrawTextAttributes( Size = 40 )标注字体大小
pm1 = val( INPUTBOX$( "剖面数量" , "起始剖面号" , "1" ) )
pm2 = val( INPUTBOX$( "剖面数量" , "终止剖面号" , "1" ) )
dim ind( 100 ) as string
hh$ = ""
for ii = pm1 to pm2
    Width = 32.7 : Height = 29 : bk = 2
    hh$ = INPUTBOX$( "剖面号" , "剖面号" , trim$( str$( ii ) ) )显示当前剖面号
    File$ = path$ + ltrim$( fn$ ) + ltrim$( str$( ii ) ) + ltrim$( hh$ )
    stat% = MsgBox( File$ + ". xls" , 0 , "文件名" )
    hwnd = Surf. FileOpen( File$ + ". xls" , 1 )
    if hwnd = 0 then end 出错退出
    for j = 2 to 40
        wks$ = Surf. GetWksCell( hwnd , j )
        if LEN( wks$ ) < 1 then
            number = j - 2
            j = 41
        endif
    next
    if number < 1 then stat% = MsgBox( "错误" , 0 , "0 个元素 !" ) : end
endif
for i = 1 to 1000
    wks$ = Surf. GetWksCell( hwnd , i , 0 )
    if LEN( wks$ ) < 1 then
        max = i - 1
        i = 1001
    endif
next
ymin = val( Surf. GetWksCell( hwnd , 1 , 0 ) )
ymax = val( Surf. GetWksCell( hwnd , max , 0 ) )
xmin = val( Surf. GetWksCell( hwnd , 1 , 1 ) )
xmax = val( Surf. GetWksCell( hwnd , max , 1 ) )
for i = 2 to max
    ty = val( Surf. GetWksCell( hwnd , i , 0 ) )
    tx = val( Surf. GetWksCell( hwnd , i , 1 ) )
    if ymin > ty then ymin = ty : endif
    if xmin > tx then xmin = tx : endif
    if ymax < ty then ymax = ty : endif

```

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    if xmax < tx then    xmax = tx    :endif
next
h0 = ( ymax - ymin ) * 0.5
w0 = ( xmax - xmin ) * 0.5
Left = bk
Bottom = Height - h0 - bk
rn = int( ( Width - bk * 2 ) / w0 )
if rn < 1 then rn = 1 :endif
Surf. FileNew( ) Surf. FilePageLayout( 0 , Width , eight )
Surf. DrawTextAttributes( Size = 20 )
Surf. MapLoadBaseMap( file $ + ". jpg" , Options = " Defaults = 1" , id = " jpg" )
Surf. ViewAutoRedraw( 0 )
Surf. Select( " jpg" )
Surf. TransformSel( Left , Bottom , w0 , h0 )
Surf. MapEditAxis( " Left Axis" , AxisLineColor = " R000 G00 B000" , ShowLabel = 0 , MinTicType = 0 , MajTic-
Type = 0 )
Surf. MapEditAxis( " Right Axis" , AxisLineColor = " R000 G00 B000" , ShowLabel = 0 , MinTicType = 0 , MajTic-
icType = 0 )
Surf. MapEditAxis( " Top Axis" , AxisLineColor = " R000 G00 B000" , ShowLabel = 0 , MinTicType = 0 , MajTic-
Type = 0 )
Surf. MapEditAxis( " Bottom Axis" , AxisLineColor = " R000 G00 B000" , ShowLabel = 0 , MinTicType = 0 , Ma-
jTicType = 0 )
for i = 0 to number - 1
    mx = val( Surf. GetWksCell( hWnd , 1 , i + 2 ) )
    mn = val( Surf. GetWksCell( hWnd , 1 , i + 2 ) )
    md = ( mx - mn ) / 5
    for j = 2 to max
        tt = val( Surf. GetWksCell( hWnd , j , i + 2 ) )
        if tt < mn then mn = tt
        if tt > mx then mx = tt
    next
    Left = ( ( Left + w0 ) mod Width )
    if ( ( i + 1 ) mod rn ) = 0 then Bottom = Bottom - h0
    Left = bk
endif

Title $ = Surf. GetWksCell( hWnd , 0 , 1 ) + Surf. GetWksCell( hWnd , 0 , 2 ) + Surf. GetWksCell( hWnd , 0 , i
+ 2 )
tt $ = ltrim $( rtrim $( Surf. GetWksCell( hWnd , 0 , i + 2 ) ) )
lf $ = path $ + tt $ + ". lvl"
stat% = MsgBox( lf $ , 0 , tt $ )
if Surf. GridData( File $ + ". xls" , xCol = 1 , yCol = 0 , zCol = i + 2 , GridMethod = 1 ) = 0 then end
mc = Surf. MapContour( File $ , LevelFile = lf $ , LabType = 0 , LabnDig = 0 , Lab2LabDist = 25 , ID = Title
$ )
if mc = 0 then end

```

```

Surf. Deselect( )
Surf. Select( Title $ )
Surf. MapEditAxis( " Left Axis" ,AxisLineColor = " R000 G00 B000" ,ShowLabel = 0 ,MinTicType = 0 ,MajTic-
Type = 0 )
Surf. MapEditAxis( " Right Axis" ,AxisLineColor = " R000 G00 B000" ,ShowLabel = 0 ,MinTicType = 0 ,MajTi-
cType = 0 )
Surf. MapEditAxis( " Top Axis" ,AxisLineColor = " R000 G00 B000" ,ShowLabel = 0 ,MinTicType = 0 ,MajTic-
Type = 0 )
Surf. MapEditAxis( " Bottom Axis" ,AxisLineColor = " R000 G00 B000" ,ShowLabel = 0 ,MinTicType = 0 ,Ma-
jTicType = 0 )
Surf. TransformSel( Left , Bottom , w0 , h0 )
Surf. DrawText( Left + . 4 , Bottom + . 4 , tt $ , id = tt $ )
Surf. DrawTextAttributes( tt $ , Size = 40 , 0 , 0 , 2 , Color = " R255 G255 B255" )
Surf. Select( tt $ )
Surf. DrawTextAttributes( , 12 , HorzAlign = 1 , Color = " R0 G0 B0" )
next
Left = ( ( Left + w0 ) mod Width ) Surf. DrawTextAttributes( Size = 16 )
if( number mod rn ) = 0 then Bottom = Bottom - h0
Left = bk
endif

Surf. DrawRectangle( Left , Bottom + h0 , Left + w0 , Bottom , ID = "xy" )
Surf. Select( id = "xy" )
Surf. DrawLineAttributes( Color = " R000 G00 B000" )
Surf. DrawFillAttributes( ForeColor = " R255 G255 B255" , BackColor = " R255 G255 B255" , Mode = 1 )
cap $ = "Y =" + str $( xmin ) + " - " + ltrim $( str $( xmax ))
Surf. DrawText( Left + 0. 5 , Bottom + h0 * 0. 5 , cap $ , id = cap $ )
Surf. Select( cap $ )
Surf. DrawTextAttributes( Size = 8 )
cap $ = "X =" + str $( ymin ) + " - " + ltrim $( str $( ymax ))
Surf. DrawText( Left + 0. 5 , Bottom + h0 * 0. 5 + 0. 5 , cap $ , id = cap $ )
Surf. Select( cap $ )
Surf. DrawTextAttributes( Size = 8 , Style = 1 , Color = " R000 G00 B000" )
Surf. Deselect( )
Surf. Select( )
cap $ = str $( ii ) + "号综合异常剖析图"
sit = 15
Surf. DrawText( sit , Height - bk/2 , cap $ , id = cap $ )
Surf. Deselect( ) : Surf. Select( cap $ )
Surf. DrawTextAttributes( 24 , HorzAlign = 1 , Color = " R000 G000 B000" )
Surf. ViewAutoRedraw( 1 )
Surf. ViewRedraw( )
if Surf. FileSaveAs( File $ , 1 ) = 0 then end
Surf. FileClose( 1 )
next

```

next

6 程序补充说明

- ( 1 )当剖析图数量过多时 ,运行 Winsurfer 中途会出错 ,程序重启 ,从出错的地方再做一次即可。
- ( 2 )对于剖析图中要求填充的情况 ,在启动 Winsurfer 时 ,先打开任意一个图并手动使之填充方式 ,再启动本程序即可 ,有问题请联系 ,必定答复。

( 3 )增加 BNK 文件可以实现  $x,y$  坐标及图框的美化要求。

7 结束语

在现有的 GIS 系统没有该功能的情况下 ,此程序便利的、无需太多的学习即可实现图册绘制。Gsmac 是个方便的环境 ,这里仅是抛砖引玉。

THE PROCESS OF APPLYING WINSUFER TO AUTOMATIC DRAWING OF ANALYTICAL GRAPHIC ATLAS

ZHANG Lei , LIU De-peng  
( Anhui Academy of Exploration Technique , Bengbu 233005 , China )

**Abstract** :This paper describes a method for automatic drawing of analytical map with Winsurfer. Winsurfer provides a script development environment :Gsmac. Being a script process developed under Gsmac , the technique is easy to operate. If the data and the interior belt , intermediate belt and outer belt of each element as well as grade documents \* . LVL and grid documents of geological maps of various composite anomalies are prepared , the analytical graphic atlas can be drawn automatically.

**Key words** :Gsmac , Winsurfer ; script development ; LVL documents , composite anomaly ; interior , intermediate and outer belts

作者简介 张雷( 1959 - ) ,男 ,工程师 ,江苏人。1989 年毕业于安徽广播电视大学计算机系 ,主要从事数据处理、算法编程、井中三分量磁测工作。

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THE APPLICATION OF WAVELET ANALYSIS TO DATA-PROCESSING OF AIRBORNE RADIOACTIVE SPECTRA

LI Bing-hai<sup>1</sup> , CHEN Tao<sup>2</sup>

( 1. Airborne Survey and Remote Sensing Center of Nuclear Industry , Shijiazhuang 050002 , China 2. Institute of Land and Resources , China West Normal University Nanchong 637002 , China )

**Abstract** :The authors applied wavelet analysis to the data processing in airborne radioactive survey , and analyzed the effect of wavelet used in spectral data processing. It is shown that the method of wavelet analysis for spectral data processing can gain more true and more ideal information than the traditional data processing method , and can accurately identify information which is beyond the main energy windows. Thus , the weak information included in airborne radioactive data can be obtained , and the geologists can get more information of the studied objects. The resolution of man-made radioactive nuclides can be improved by using low-energy spectral information in the airborne radioactive survey.

**Key words** :wavelet analysis ; data processing , airborne radioactive survey ; low-energy spectra ; man-made nuclide

作者简介 李兵海( 1970 - ) ,男 ,工程师 ,成都理工大学地球探测与信息技术专业工学硕士 ,长期从事 3S 技术研究及应用 ,以及小波数据处理等方面的研究( Email lbh183@163.com )。